Notice of Allowability	Application No.	Applicant(s)	
	09/831,240	DUNN, MARK	
	Examiner	Art Unit	
	Kimbinh T. Nguyen	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed 07/26/04*.

2. ☒ The allowed claim(s) is/are *9-22*.

3. ☒ The drawings filed on *03 May 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. This action is responsive to amendment filed 07/26/04.

2. Claims 9-22 are pending in the application.

3. The objection of claim 13 has been withdrawn.

4. The replacement drawing sheets of fig. 1 and fig. 2 filed 10/20/2003 are accepted by the examiner.

Reasons for Allowance

5. Claims 9-22 are allowed.

6. The following is an examiner's statement of reasons for allowance:

Claim 9, the prior art does not teach a method for shading and texturing a 3-dimensional computer generated image, the method including: determining translucency values for texture data to be applied to surface object at an elementary area for a first opaque object surface to determine at the elementary area, the object surfaces are opaque; for one or more subsequent opaque object surfaces at the elementary area, for each opaque object surface, comparing the depth value of the subsequent opaque object surface to the stored depth value for the opaque object surface at the elementary area; between consecutive steps of comparing depth values, if, in the step of comparing the depth value of the subsequent opaque object surface is determined closer to the image plane than the opaque object surface associated with the stored depth value, replacing the stored depth value with the depth value for the subsequent opaque object surface; wherein only after the steps of comparing the depth value for the subsequent opaque surface to the stored depth value and replacing the stored depth value with the depth value for the subsequent opaque object surface are

executed, rendering the opaque object surface at the elementary area. The closest prior art Duluk, Jr. teaches method for performing conservative hidden surface removal by pixel processing block, alpha testing, depth testing and stencil operation are performed on the pixel; however, Duluk, Jr. does not teach performing depth testing on the opaque object surface to determine which one of the opaque surface is closer to the image plane at a given elementary area and rendering the opaque object surface. For these reasons, claim 9 is allowed.

Claim 13 claims an apparatus for shading and texturing a 3D computer generated image. The apparatus of claim 13 includes the means for executing the steps same as the method steps in claim 9 and is allowed under the same reasons set forth in claim 9.

Claim 16, the prior art does not teach a method for shading and texturing a 3-dimensional computer generated image for presentation of the image on a display, the method including the steps of: for each elementary area of the display, based on the depth values for the object surfaces, at each elementary area, sorting the object surfaces in front to back order from the image plane; after the sorting step, at each elementary area, for the sorted object surfaces, starting with the most forward object surface determining whether or not the object surface is completely opaque, if, it is determined that an object surface is completely opaque at an elementary area: at that elementary area, discarding the surface-defining data for the object surfaces behind the opaque object surface; at the elementary area, applying shading and texturing to the opaque object surface.

Claim 20 claims an apparatus for shading and texturing a 3D computer generated image. The apparatus of claim 20 includes the means for executing the steps same as the method steps in claim 16 and is allowed under the same reasons set forth in claim 16.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimbinh T. Nguyen whose telephone number is (703) 305-9683. The examiner can normally be reached on Monday to Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Friday from 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 2, 2004

Kimbinh Nguyen

Patent Examiner AU 2671